


Study of the Vapor Adsorption on Adsorbents
With Heterogeneous Surface. Communication 2.
Experiments With Organically Substituted
Silica Gel

S/062/60/000/009/002/021
B023/B064



silica gel thus obtained is called C-1 (S-1). A portion of silica gel S-1 was treated with nitric acid vapors at 200°C for 6 h. Thus, the organic part of the surface was oxidized, the CH_3 radicals substituted by OH groups, and the methylated silica gel with hydrophobic properties became hydrophilic. This specimen was called C-2 (S-2). The composition of the surface of silica gel S-1 and S-2 was determined by an organic analysis. The analysis was carried out at the same time as the determination of the weight losses in calcination at 1250°. Table 1 shows the analytical results. It may be seen that the demethylation of the surface leads to an increase of its degree of hydration. The specific surface of the specimen changed by 3%. Nitrogen, cyclohexane, benzene, and water were used as adsorbates. Figs. 1-4 show the sorption branches of the adsorption isothermal lines of the vapors of these substances. In all cases, the isothermal lines for S-1 are lower than those for S-2. Table 2 gives a comparison among the specific sorption volumes. The authors explain their results with the help of the respective published data. Summing up: 1) The

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KISELEV, V.F.

Relation between the surface energy of silica and its dispersity.
Zhur. fiz. khim. 34 no.3:698-699 Mr '60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Silica)

15.2110

67896

~~5(4)~~

AUTHORS:

Kiselev, V. P., Krasil'nikov, K. G.,
Khodakov, G. S.

S/020/60/130/06/026/059
B004/B007

TITLE:

The Influence of the Aggregation of Quartz¹⁶ Particles During Grinding Upon Its Adsorptive Properties

PERIODICAL:

Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 6, pp 1273 - 1276 (USSR)

ABSTRACT:

In reference 1 it was said that the specific surface of air-dried quartz decreases with an increase of the duration of grinding. This was explained by the aggregation of the quartz particles. The authors aimed at investigating this phenomenon more thoroughly and to find out whether its effects on the adsorption of nitrogen, and water differ. They maintain that this phenomenon is the cause of the considerable discrepancy in published data for adsorption values and adsorption energy of quartz. Two samples of highly dispersive quartz were investigated. Sample Kv-4 was obtained by grinding transparent crystalline quartz with an excess of water, sample Kv-4A by further grinding Kv-4 in air. On both samples, the adsorption of nitrogen and steam was measured (Table 1). As shown by

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The Influence of the Aggregation of Quartz Particles S/020/60/130/06/026/059
During Grinding Upon Its Adsorptive Properties B004/B007

figure 1, the adsorption isothermal line of nitrogen on Kv-4A is lower than in the case of Kv-4 because of particle aggregation, whereas the adsorption isothermal line of steam is higher. Also figure 2 shows that the different kind of grinding the same quartz affects the adsorption of nitrogen and steam differently. This phenomenon has not yet been explained. It is presumed that relatively dense aggregates are formed, the inner surfaces of which are inaccessible to the nitrogen, whereas the adsorption of water is not impaired by these aggregations because of its dispersive (peptizing) properties. Such phenomena of aggregation were observed also in the case of other substances (corundum, calcite, silica gel) in dry grinding. The authors thank Academician P. A. Rebinder for his interest in this paper, and G. I. Aleksandrova for assisting in measurements. There are 2 figures, 1 table, and 21 references, 13 of which are Soviet.

ASSOCIATION:

Card 2/3

Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov). Vsesoyuznyy
nauchno-issledovatel'skiy institut novykh stroitel'nykh

BONDARENKO, A.V.; KISELEV, V.F.; DRASIL'NIKOV, K.G.

Composition of products of the thermal dehydration of silica and
properties of its dehydrated surface. Kin. i kat. 2 no. 4:590-598
Jl-Ag '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova,
fizicheskoy fakul'tet.
(Silica) (Dehydration (Chemistry))

GANICHENKO, L.G.; KISELEV, V.F.; MURINA, V.V.

Adsorption properties of the crystalline titanium dioxide surface.
Kin. i kat. 2 no.6:877-886 N-D '61. (MIRA 14:12)

1. Moskovskiy gosudarstvennyy universitet, fizicheskiy fakul'tet.
(Titanium oxide)
(Adsorption)

24659

3/076/61/035/006/012/013
B127/B203

5.4600

AUTHORS: Tagiyeva, M. M. and Kiselev, V. F.

TITLE: Investigations of the effect of gamma radiation on the surface properties of silica

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 6, 1961, 1381-1382

TEXT: Highly disperse KB-3 (KV-3) quartz and aerosol were exposed to gamma radiation. Co^{60} was used as radiation source. The radiation dose for both specimens was $12 \cdot 10^6$ r. Radiation lasted 24 hr. The experiment was made at room temperature. The ampulla with the adsorbent, equipped with a glass diaphragm, was evacuated at 200°C to a vacuum of $5 \cdot 10^{-5}$ mm Hg. To remove the products formed during irradiation, the ampulla was sealed on to a receiving vessel filled with silica gel and immersed in liquid nitrogen. For measuring the adsorption of the H_2O vapor and the O_2 , the ampulla was sealed on to a vacuum apparatus. The glass diaphragm was broken by the high vacuum. The content of structural water was determined in the same manner by measuring the steam pressure. The water was released

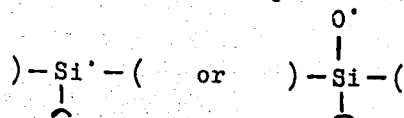
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Investigations of the effect of...

S/076/61/035/006/012/013
B127/B203

by heating to 1000°C. By the irradiation, the surface was dehydrated to a large extent. At the radiation dose indicated, about 2 μ moles of crystal water were separated per m^2 surface of the aerosol, which corresponds to a dehydration of this specimen at 800°C during 24 hr. The reduction of the OH⁻ groups on the surface can be judged by the steam absorption specific of the surface state. The adsorptive capacity of quartz and aerosol is immediately reduced by irradiation. At the same dosage, the adsorptive capacity of the more intensely hydrated quartz specimen is also reduced to a higher extent. In the interaction of gamma photons with silanol groups, the formation of free radicals is possible:



The measurement of the irreversible adsorption of O₂ on the aerosol surface at room temperature yielded the value of 0.3 μ mole/ m^2 . This is by two powers higher than in irradiation with ultraviolet light. Principally, the

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Investigations of the effect of...

O₂ adsorption proceeds on the free radicals. Their concentration on the surface is not high, only 5 % of the disrupted Si-O-H bonds are preserved in the form of free radicals. The major part of the SiO₄ tetrahedrons undergo a rotation which leads to an amalgamation of the bonds. The SiO₂ was also observed to turn gray. Irradiation was carried out at the Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry) in Professor A. S. Kuz'minskiy's laboratory. There are 1 figure, 1 table, and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Livingston R., Zeldes H., Taylor E. H., Faraday Soc. Disc., 19, 166, 1955.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: June 14, 1960

Card 3/3

GANICHENKO, L.G.; KISELEV, V.F.; KRASIL'NIKOV, K.G.; MURINA, V.V.

Effect of the nature of silica gel and quartz surfaces on
their adsorption properties. Part 4: Adsorption and heat of
adsorption of aliphatic alcohols on powdered silica gel.
Zhur.fiz.khim. 35 no.8:1718-1726 Ag '61. (MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.
Lomonosova.

(Alcohols) (Adsorption)

ZARIF'YANTS, Yu.A.; KISELEV, V.F.; FEDOROV, G.G.

Chemical adsorption of oxygen on a freshly cracked graphite surface. Zhur.fiz.khim. 35 no.8:1885-1886 Ag '61.

(MIRA 14:8)

1. Moskovskiy gosudarstvennyy universitet, fizicheskiy fakul'tet.
(Oxygen) (Adsorption) (Graphite)

YEGOROV, M.M.; KISELEV, V.F.; KRASIL'NIKOV, K.G. (Moscow)

Effect of the nature of silica gel and quartz surfaces on their adsorption properties. Part 5: Adsorption of water vapor on the surface of crystalline and amorphous modifications of silica. Zhur.fiz.khim. 35 no.10:2234-2240 0 '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Adsorption) (Silica)

BONDARENKO, A.V.; KISELEV, V.F.; KRASIL'NIKOV, K.G.

Thermal dehydration of silica and certain properties of its surface.
Dokl.AN SSSR 136 no.5:1133-1136 F '61. (MIRA 14:5)

1. Moskovskiy gos.universitet im. M.V.Lomonosova. Predstavleno akad.
M.M.Dubininym.
(Silica) (Dehydration) (Surface chemistry)

GANICHENKO, L.G.; KISELEV, V.F.

Investigating the surface properties of titanium dioxide crystals.
Dokl.AN SSSR 138 no.3:608-611 My '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
Predstavleno akademikom M.M.Dubininyam.
(Titanium dioxide crystals)

27267

S/020/61/139/005/021/021
B103/B208

5.4400

AUTHORS: Fedorov, G. G., Zarif'yants, Yu. A., and Kiselev, V. F.

TITLE: Chemical and physical adsorption of oxygen on the surface of freshly split graphite

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961, 1166-1169

TEXT: The authors studied the adsorption mentioned in the title by using finely ground natural graphite which was pulverized in an argon atmosphere. Studies of this kind are regarded as being important in the search for new ways of surface modification, in order to obtain efficient adsorbents and polymer fillers. One of the applied samples was specially purified. The pulverized samples had a specific surface of 275 and 400 m²/g. They were put into the volumeter under exclusion of air. The specific surface was determined after a cycle of absorption measurements with oxygen from the low-temperature nitrogen adsorption by the BET (BET) method. The specific adsorption values of both samples were found to fit well single isotherm. This indicates the good reproducibility of the surface properties for the grinding method applied. Control experiments showed that

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Chemical and physical...

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the fine iron powder which is always present (some fractions of one percent) in graphite thus ground adsorbs not more than 0.5% of the adsorbed amount of graphite. The interaction of oxygen with the fresh cleavage plane of graphite at room temperature is a typical case of activated chemical adsorption. The physical adsorption is extremely low at these temperatures. Adsorption equilibrium is quickly attained in the initial stage, which indicates the low activation energy of the process. With further pressure increase the adsorption increases very slowly. The graphite surface is thought to be inhomogeneous. It consists of sites with different adsorption activity. The surface is saturated with chemisorbed oxygen already at a pressure close to the atmospheric one. Desorption measurements disclosed that all the oxygen adsorbed was irreversibly bound to the surface. No further adsorption takes place on an oxidized sample. The adsorption activity of samples kept at room temperature in an argon atmosphere for 1, 10, and 30 days did not change. Specific adsorption was reduced by about 20% by heating an ampul with non-oxidized graphite at 300°C for 50 hr. This may be due to partial saturation of the surface by gas molecules which escaped from the glass during heating. Graphite roasted at 800°C for 24 hr in an ampul which had

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Chemical and physical...

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previously been degassed, lost only 10% of its adsorption. Such a high stability of free radicals on the surface makes graphite a suitable test object of the elementary interactions of various molecules with the surface radicals. Pulverization of graphite in dry air destroys the crystals in all crystallographic directions. The large surface thus formed has a high content of ruptured π or σ bonds which form centers of chemical O_2 adsorption on the surface. On the other hand, the activity of π -electrons may be increased by lattice deformations in the basal plane which also contributes to an increase in adsorption activity. By measuring the adsorption isotherms at $-196^\circ C$, the authors proved that the chemisorption of oxygen at these temperatures is insignificant. The isotherms have hysteresis loops both on the initial and on the oxidized graphite sample. The authors believe that this loop which extends to the range of low relative pressures, is due to a certain swelling of the sample. The O_2 molecules may penetrate into the interplanar spaces of the graphite crystals which were largely destroyed during grinding. In the high-pressure range, the hysteresis is obviously due to capillary condensation in the pores and gaps between the particles. The desorption isotherm shows a

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Chemical and physical...

S/020/61/139/005/021/021
B103/B208

X

break at $P/P_g = 0.25$. This break may be related to the clearing of some pores which were filled at high vapor tensions. This break did not appear at low pressures. The adsorption isotherm of nitrogen shows no hysteresis phenomena in this pressure range. This is explained by a higher penetrability of O_2 at low temperatures. For this reason, the specific surface of fine-disperse graphite which was calculated from the low-temperature N_2 adsorption, may be a little too low, as compared with the surface accessible to O_2 molecules. This fact is, however, negligible for the authors' conclusions. There are 3 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc. The reference to English-language publications reads as follows: T. Keutetzky, H. Tománek, Phys. Rev., 120, 1212 (1960).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

PRESENTED: March 15, 1961, by M. M. Dubinin, Academician

SUBMITTED: March 13, 1961
Card 4/4

KISELEV, V.F.

35065

S/195/62/003/001/006/010
E071/E136

5.1115

AUTHORS: Kvlividzo, V.I., Iyevskaya, N.M., Yegorova, T.S.,
Kiselev, V.F., and Sokolov, N.D.

TITLE: NMR studies of water-vapour adsorption on the surface
of silica gel

PERIODICAL: Kinetika i kataliz, v.3, no.1, 1962, 91-98

TEXT: The mechanism of adsorption and the state of the adsorbed molecules on the surface of an adsorbent cannot be elucidated on the basis of purely adsorptive measurement. For this purpose some additional data on the system adsorbed substance - adsorbent obtained by physical methods are necessary. As a first stage in the investigations the authors studied signals of nuclear magnetic resonance from protons of hydroxyl groups of water adsorbed on the surface of silica gel. The results obtained were compared with adsorption properties of silica gel, with measurements of heats of adsorption and available spectroscopic data. Silica gels K-2 (K-2) and K-4 (K-4) obtained by the hydrolysis of SiCl_4 and a purified sample of technical silica gel

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NMR studies of water vapour ...

S/195/62/003/001/006/010
EG71/E136

KCK-3 (KSK-3) were used for the investigation. The NMR measurements were carried out at room temperature on a sample of 0.2-0.3 g. The width of the lines was measured as the distance between maxima on the differential curve. The second moment was calculated from the differential curve of the signal absorption. Additions of water vapour in the ampule with silica gel for NMR and adsorption measurements were carried out by means of a spring balance. Heats of adsorption were determined either directly from calorimetric measurements or by the differentiation of the curve relating the heat of wetting and the amount of water adsorbed on the specimen. From the adsorption data and heat of wetting curves, differential curves of the changes in free energy and entropy of adsorption were calculated. It was shown that molecules of water are absent on the surface of the samples evacuated at 200 °C. In the initial stage of adsorption a sharp decrease in the width of the line of the second moment was observed. These changes in the NMR signals agree with the trends of the curves of differential heat and entropy of adsorption. The possibility of interaction of water molecules

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NMR studies of water vapour ...

S/195/62/003/001/006/010
E071/E136

with the surface of silica gel through the coordination and
hydrogen bonds is discussed.
There are 5 figures and 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im.
M.V. Lomonosova, Fizicheskiy fakul'tet
(Moscow State University imeni M.V. Lomonosov,
Physics Division)

SUBMITTED: July 3, 1961

Card 3/3.

X

S/076/62/036/009/002/011
B101/B102

AUTHORS: Yegorov, M. M., Ignat'yeva, L. A., Kiselev, V. F., Krasil'nikov, R. G., and Topchiyeva, K. V.

TITLE: Study of the surface properties of catalytic aluminum oxide

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 9, 1962, 1882 - 1889

TEXT: The specific heat of wetting of commercial Al_2O_3 by water, methanol, ethanol, and n-heptane, and the content of structural water Al_2O_3 were measured, the phase composition of Al_2O_3 was determined by x-ray analysis, and the infrared spectrum of deuterated Al_2O_3 was taken. Whereas with n-heptane the heat of wetting is independent of the content of structural water in Al_2O_3 , it increases, in the case of water and alcohols, with increasing thermal dehydration of Al_2O_3 . Since, however, the specific surface of Al_2O_3 becomes smaller at high annealing temperatures, the heat of

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...ation sphere of the Al

Study of the surface ...

S/076/62/036/009/002/011
B101/B102

surface atoms which is not fully occupied after the thermal dehydration is filled up by water or alcohols with formation of hydrate or alcoholates, respectively. The irreversible sorption of alcohols increases after thermal treatment of Al_2O_3 at high temperature. There are 4 figures and 2 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova, Fizicheskiy i khimicheskiy fakul'tety (Moscow State University imeni M. V. Lomonosov, Physical and Chemical Departments)

SUBMITTED: November 1, 1960

Card 3/3

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ZARIF'YANTS, Yu.A.; KISELEV, V.F.; LEZHNEV, N.N.; NOVIKOVA, I.S.; FEDOROV, G.G.

Synthesis and functional analysis of oxygen complexes on a surface of freshly cleft graphite. Dokl. AN SSSR 143 no.6:1358-1361 Ap '62. (MIRA 15:4)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova i Nauchno-issledovatel'skiy institut shinnoy promyshlennosti. Predstavleno akademikom M.M.Dubininym.
(Graphite) (Surface chemistry) (Oxygen compounds)

37521

S/020/62/144/001/021/024
B124/B101

5.4400

AUTHORS: Zarif'yants, Yu. A., Kiselev, V. F., and Fedorov, G. G.

TITLE: Differential adsorption heats of oxygen and water vapor on the surface of graphite

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 151-154

TEXT: Fine-disperse graphite with a specific surface $S = 350 \text{ m}^2/\text{g}$, which had been obtained from natural graphite crushed in a ball mill in an argon atmosphere, was used in the experiments. Adsorption heats were measured using an automatic calorimeter with constant heat exchange; oxygen adsorption was determined by a volumetric method, and by water vapor adsorption with magnesium perchlorate. These methods were described in Ref. 7 (ZhFKh, No. 6 (1962)). The initial adsorption heats of oxygen were very high (110 kcal/mole). With a surface coverage of about $0.5 \mu\text{M}/\text{m}^2$ of oxygen, the differential adsorption heat begins to decrease, and with $1 \mu\text{M}/\text{m}^2$, its value is only $\sim 50 \text{ kcal/mole}$. The results obtained show a high degree of reproducibility on fresh cleavage areas of graphite. The high initial adsorption heats are due to the formation of carbonyl groups,

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Differential adsorption heats of ...

S/020/62/144/001/021/024
B124/B101

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V.
Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: December 26, 1961, by M. M. Dubinin, Academician

SUBMITTED: December 23, 1961

Card 3/3

L 17720-63

EPR/EPF(c)/EWP(q)/EWT(m)/BDS

AFFTC/ASD

P3-4/Pr-4

WW/WH

ACCESSION NR: AP3004073

S/0076/63/037/007/1619/1622

AUTHORS: Fedorov, G. G.; Zariflyants, Yu. A.; Kiselev, V. F.

TITLE: Analysis of the surface properties of a fresh fracture in graphite

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 7, 1963, 1619-1622

TOPIC TAGS: graphite, oxygen, oxygen adsorption, heat of adsorption.

ABSTRACT: Authors analyzed the reaction capability of the surface of a fresh graphite fracture with respect to oxygen. A specially-purified, natural graphite was used in the experiments. A thin grist was obtained in a laboratory-type steel vibratory mill with an overpressure of purified argon. The powder was then poured into a glass ampule which was then soldered to the adsorption apparatus. After prolonged evacuation and deaeration of the apparatus to a vacuum of 1×10^{-5} mm mercury column, the diaphragm was broken, the sample was evacuated and the oxygen adsorption was measured. Differential heats of oxygen adsorption were determined. The inhibiting effect of the reaction products on the oxidation process of a fresh fracture was demonstrated. Assumptions concerning a possible mechanism of oxidation of the graphite surface were pointed out. Orig. art. has: 2 figures.

ASSOCIATION: Moscow state university.

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L 18307-63

EPR/EPF(c)/ENP(q)/ENT(m)/BDS

AFFTC/AS

Ps-4/Pr-4

ACCESSION NR: AP3004981

WH/K

S/0076/13/037/008/1846/1849

AUTHORS: Zarif'yants, Yu. A.; Kiselev, V. P.; Fedorov, G. G.

TITLE: Investigation of the surface properties of the freshly splitted graphite.

SOURCE: Zhurnal fiz. khimii, v. 37, no. 8, 1963, 1846-1849

TOPIC TAGS: heat adsorption by graphite, water vapor heat adsorption

ABSTRACT: Authors studied the adsorption of water vapors on a fresh surface of graphite. Measurement of the water vapor adsorption shows that the physical adsorption isotherm is complicated by a chemical reaction. The value of the irreversible adsorption measured after the adsorption cycle on the surface of fresh graphite, kept for a period of 48 hrs. in saturated water vapors, consists of $0.53 \mu \text{ mole/m}^2$. The differential of heat adsorption in the region of small surface area is almost four times greater than the heat of physical adsorption for the usual oxidizing hydrocarbon adsorptions. Apparently, the first traces of water adsorb chemically on the valence-saturated carbon atoms. The graphite was left for 12 hrs. to be exposed to atmospheric oxygen before the desorption was measured. Almost all adsorbed oxygen was irreversibly bound with the graphite surface and its value was $1 \mu \text{ mole/m}^2$. Thus, the retention of fresh graphite in

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L 18307-63

ACCESSION NR: AP3004981

saturated water vapors does not result in full passivation of the surface. The adsorption of oxygen on its surface is accompanied by the release of a large amount of heat which indicates chemical adsorption. Orig. art. has: 4 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet fizicheskii facul'tet (Moscow state university, physics faculty)

SUBMITTED: 19Sep62

DATE ACQ: 06Sep63

ENCL: 00

SUB CODE: PH, CH

NO REF SOV: 006

OTHER: 001

Card 2/2

FEDOROV, G.G.; ZARIF'YANTS, Yu.A.; KISELEV, V.F.

Properties of the surface of a freshly cleft graphite. Part 3. Zhur.
fiz.khim, 37 no.10:2344-2346 O '63. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet.

KAZANSKIY, V.B.; NIKITINA, O.V.; PARIYSKIY, G.B.; KISELEV, V.F.

Electron paramagnetic resonance study of the radical form of
molecular oxygen adsorption on reduced titanium dioxide. Dokl.
AN SSSR. 151 no.2:369-372 J1 '63. (MIRA 16:7)

1. Institut khimicheskoy fiziki AN SSSR i Moskovskiy gosudarstvennyy
universitet im. M.V.Lomonosova. Predstavleno akademikom V.N.
Kondrat'yevym.

(Titanium oxides--Spectra) (Oxygen) (Adsorption)

KISELEV, V.F.; POSPELOV, V.V.; FRIDKIN, V.M.

Spectral curves of the depolarization of silver chloride crystals.
Zhur. nauch. i prikl. fot. i kin. 9 no.5:357-359 S-O '64.

(MIRA 17:10)

1. Institut kristallografii AN SSSR i Fizicheskiy fakul'tet
Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.

DOBROVOL'SKIY, N.N.; ZARIF'YANTS, Yu.A.; KISELEV, V.F.; LEZHNEV, N.N.;
FEDOROV, G.G.

Properties of the surface of a freshly left graphite. Part 4.
Zhur. fiz. khim. 38 no.2:506-509 F '64. (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet Nauchno-issledovatel'-
skiy institut shinnoy promyshlennosti.

L 35090-65 EEC(b)-2/EPF(c)/EPR/ENG(1)/EWP(1)/EWI(1)/EWI(m)/EEC(t)/ZWP(b)/T/ETP(e)
Pc-4/PI-4/Pr-4/P6-1 IJP(c) RM/VH/VH

ACCESSION NR: AP5006698

S/0076/65/039/002/0461/0462

AUTHOR: Kvliivdze, V. I.; Zarif'yants, Yu. A.; Kiselev, V. F.

TITLE: Surface properties of fresh cracks in graphite. ¹⁵ VI. Nuclear magnetic resonance in polyethylene with a freshly cracked graphite filler

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 2, 1965, 461-462

TOPIC TAGS: cracked graphite, filled polyethylene, mobile hydrocarbon group, nuclear magnetic resonance, graphite filler, graphite surface

ABSTRACT: The influence of a filler on the NMR spectrum of natural and synthetic rubber was studied earlier by several researchers (see, e.g., I. Ya. Slonim, Usp. khimii, 31, 609, 1962). In the present work, the NMR signals from pure polyethylene were compared with those from polyethylene samples filled with freshly-cracked graphite. The results show that the active filler significantly modifies the shape of the NMR signals. The authors also found a widening of the narrow component of the NMR signal which indicates that the most mobile hydrocarbon groups of the amorphous part of the polymer are being braked. The introduction of graphite with oxidized surfaces results in less drastic changes in the structure of the NMR signals. To obtain deeper insight into the polymer-filler

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L 35090-65

ACCESSION NR: AP5006698

interaction, the authors are presently conducting tests at low temperatures.
Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow state university)

SUBMITTED: 26Oct63

ENCL: 00

SUB CODE: MT, GC

NO REF SOV: 007

OTHER: 003

Card 2/2

FIGUROVSKAYA, Ye.N.; KISELEV, V.F.; VOL'KENSHTEYN, F.F.

Effect of chemisorption of oxygen on the work function and
conductance of titanium dioxide. Dokl. AN SSSR 161 no.5:1142-
1145 Ap '65. (MIRA 18:5)

1. Moskovskiy gosudarstvennyy universitet i Institut fizicheskoy
khimii AN SSSR. Submitted October 28, 1964.

KVILIVTSE, V.F.; KUSEYEV, V.F.; SERPINSKIY, V.V.

Nuclear magnetic resonance study of water protons in zeolites at low temperatures. Dokl. AN SSSR 165 no.5:1111-1114 D '65.
(MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova
i Institut fizicheskoy khimii AN SSSR. Submitted May 8, 1965.

the initial stage of filling of the surface. It is postulated that at this stage, a part of the molecules enter into donor-acceptor bonds with the coordination-unsaturated surface atoms of germanium, which have vacant and sufficiently low d orbitals. At the same time, the electron density of the unshared electron pair of oxygen (in the H₂O molecule) is drawn into the d subshell of the germanium atom; Ge thus acquires a net

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000722810012-8

Card 1/2

L 06427-67

ACC NR: AP6026702

negative charge, and water, a net positive charge. The moment of this dipole may be many times greater than that of water. Above 500°K, OH groups are removed from the surface oxide film, causing the structure of the oxide to change. At 650-750°K, this structure converts to the close-packed tetragonal modification of GeO_2 . This causes irreversible changes in the adsorptive activity and to the healing of defects serving as the base for recombination centers and fast states. The oxide film begins to decompose at 700°K, and Y_g^0 shifts to the negative side because the defect concentration increases sharply. Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 15Jan66/ ORIG REF: 003

Card

2/2

L 10783-67 EWT(m)
ACC NR: AF7003505

SOURCE CODE: UR/0076/66/040/006/1396/1399

AUTHOR: Prudnikov, R. V.; Kiselev, V. F. 28

ORG: Physics Faculty, Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet, Fizicheskii fakul'tet)

"Effects of the Adsorption of Water on the Rate of Surface Recombination and Surface Conductivity of Germanium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 40, No. 6, Jun 66, pp 1396-1399

ABSTRACT: The effects of water adsorption on surface recombination ϕ , surface conductivity σ , and the surface potential φ of Ge of the n-type with an oxidized surface were studied. ϕ increased with increasing temperatures of the treatment of Ge samples in vacuo. Adsorption of water on the initial Ge in the region of low filling of the surface reduced ϕ ; there was no further change at higher degrees of filling. Adsorption on thermally treated samples resulted in an abrupt decrease of ϕ , which then approached the value for the initial sample. During desorption ϕ decreased along a curve for Ge treated in vacuo at 20°. After evacuation the initial value of ϕ was restored. Dehydration and rehydration in the 20-200° range resulted in reversible changes of ϕ . The time required

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UDC: 541.183

0926 0040

L 10783-67

ACC NR: AP7003505

for a stable value of ϕ to become established did not exceed 5 min. The values of ϕ increased with increasing water adsorption, while those of ψ were displaced into the positive range. The phenomena observed were due to donor-acceptor interaction of water molecules with coordinatively unsaturated Ge atoms at the surface. Orig. art. has: 2 figures. [JPRS: 38,967]

TOPIC TAGS: germanium, adsorption, electric conductivity

SUB CODE: 20, 07 / SUBM DATE: 07Jul65 / ORIG REF: 008 / OTH REF: 007

Card 2/2 *llh*

L 35325-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6026838

SOURCE CODE: UR/0020/66/166/002/0395/0398

AUTHOR: Prudnikov, R.V.; Kiselev, V.F.; Yegorov, M.M.

ORG: Moscow State University (Moskovskiy gosudarstvennyy universitet)

TITLE: Investigation of the adsorption properties of a germanium dioxide surface

SOURCE: AN SSSR. Doklady, v. 166, no. 2, 1966, 395-398

TOPIC TAGS: germanium compound, adsorption, hydrolysis, dehydration, molecular structure, chemical stability, reaction temperature

ABSTRACT: The authors studied the adsorption properties of germanium dioxide specimens produced by hydrolysis of germanium tetrachloride. Water was used as the adsorbate since it is highly sensitive to the state of the oxide surface. Curves are given showing the specific surface, content of structural water calculated per gram and per square meter of the surface, and irreversible adsorption of water as functions of temperature. The greatest losses of water take place when the specimen is heated to 300°. Dehydration takes place without any noticeable change in the specific surface. Calculation of the structural water content per unit area shows an unusually high value at low temperatures, much greater than that for silicon and titanium oxides. Apparently a part of the water at low temperatures is located in structural defects in deformed GeO₂ particles produced by partial transition from the

Card 1/2

UDC: 541.183.2

09/6 25 90

ACC NR: AP7012437

SOURCE CODE: UR'0020'66/171'002/0374/0377

AUTHOR: Kiselev, V. E.; Nikitina, O. V.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet); Scientific Research Institute of the Tire Industry (Nauchno-issledovatel'skiy institut shinnoy promyshlennosti)

TITLE: Valency state of peripheral carbon atoms on the surface of a fresh graphite fracture

SOURCE: AN SSSR. Doklady, v. 171, no. 2, 1966, 374-377

TOPIC TAGS: adsorption, graphite, electron paramagnetic resonance, chemical valence

SUB CODE: 07

ABSTRACT: The adsorption properties and the electronic paramagnetic resonance spectra of graphite powders vibropulverized under different conditions were studied. The specific surfaces of the specimens determined (after completion of adsorption measurements) from low-temperature adsorption of nitrogen varied from 180 to 230 meters²/gram, corresponding to particle size of about 200 AU. Plotting of micromoles/meter² versus torrs of pressure gave a variable of irreversible adsorption of 0.65 micromole/meter². Considering that oxygen is

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UDC: 541.515 + 541.183.26+541.18.053

0932 1386

ACC NR: AP7012437

adsorbed in the atomic form, this is equivalent to a concentration of active sites of about 10^{14} sites/cm². However, this value characterizes the mean concentration of sites over the entire particle surface. Only the prismatic facets are reactive. Recalculation of the concentration of active sites on the surface of the prismatic facets leads to a value of about 10^{15} sites/cm², which is close to the concentration of carbon atoms on the surface of these facets.

Orig. art. has: 2 figures and 1 formula. [JPRS: 40,422]

2/2

62-58-5-3/27

AUTHORS: Mikhaylov, B. M., Kiselev, V. G., Bogdanov, V. S.

TITLE: Radiation-Chemical Conversions of Organic Substances (Radiatsionno-khimicheskiye prevrashcheniya organicheskikh veshchestv) Communication 3: Conversions of Ethylene Under the Action of Rapid Electrons (Soobshcheniye 3. Prevrashcheniya etilena pod vliyaniyem bystrykh elektronov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Khimicheskikh Nauk, 1958, Nr 5, pp. 545 - 549 (USSR)

ABSTRACT: Mund and Kokh (Reference 2) investigated for the first time the radiation-action of high energy on ethylene. They found out that ethylene is converted into hydrogen under the influence of α -particles. Lind and his collaborators (Reference 3) obtained hydrogen and small quantities of methane and ethane by means of irradiation of ethylene by α -particles. Mak-Lennan and Patrik (Reference 4) discovered also acetylene besides H_2 and CH_4 in the reaction products of the radiolysis of ethylene. Moreover it was found that ethylene is con-

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Radiation-Chemical Conversions of Organic Substances. 62-58-5-3/27
Communication 3: Conversions of Ethylene Under the Action of Rapid Electrons

verted into polyethylene or into liquid products on the action of γ -radiation. In the present work, the conversions of ethylene under the action of rapid electrons were investigated, as well as the influence of the irradiation-time of the initial pressure, the dilution of the initial ethylene by means of nitrogen and hydrogen. Gaseous and liquid reaction-products were subjected to the analysis. The authors found that the initial products of the radiolysis of ethylene do not represent hydrogen and methane, as was previously assumed, but butane and acetylene (References 2 to 4). The gaseous reaction-products contain, besides butane and acetylene, small quantities of C_2H_6 , C_4H_8 and H_2 , as well as traces of propylene. Liquid reaction-products (boiling out up to $130^\circ C$) consist of aliphatic hydrocarbons C_6 and C_8 . The highest fractions contain important quantities of aromatic and unsaturated hydrocarbons. The formation of hexane, octanes of butane and other highest alkanes is carried out by means of the condensation of aliphatic biradicals and of an even number of carbon-atoms with subsequent hydration of the same. The energetic yield of reaction:

Card 2/3

Radiation-Chemical Conversions of Organic Substances. 62-58-5-3/27
Communication 3: Conversions of Ethylene Under the Action of Rapid Electrons

16 molecules per 100 eV. A reduction of the initial pressure increases the degree of decomposition of ethylene without influencing the course of reaction. A dilution of ethylene by means of nitrogen increases the conversion substantially (with intense reduction of the yield of gaseous hydrocarbons). A dilution by means of hydrogen does not influence the radiolysis of ethylene. There are 2 figures, 4 tables and 10 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute for Organic Chemistry imeni N.D. Zelinskiy, AS USSR)

SUBMITTED: February 8, 1957

1. Organic substances--Effects of radiation 2. Radiation--Chemical effects

Card 3/3

S/062/60/000/009/011/021
B023/B064

AUTHORS: Mikhaylov, B. M. and Kiselev, V. G.
TITLE: Radiation-chemical Transformations of Organic Substances.
Communication 4. Oxidation of Ethylene by Oxygen Under the
Action of Fast Moving Electrons

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, 1960, No. 9, pp. 1619-1628

TEXT: The authors studied the oxidation of ethylene by oxygen in the gaseous phase under the action of a beam of fast moving electrons. The following problems were clarified: effect of the radiation time, ratio of the initial gases, temperature and material of the reaction vessel. Experiments on the effect of the total dose upon the oxidation process were carried out with ethylene - oxygen mixtures. The ratio was 1 : 1. Further conditions: room temperature, initial pressure equal to the atmospheric pressure, the vessel - an aluminum chamber. The time of radiation was between 5 and 45 minutes, the radiation doses were $0.2 \cdot 10^{23}$ - $1.7 \cdot 10^{23}$ ev. Figs. 1-4 list the experimental results. It is
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Radiation-chemical Transformations of Organic
Substances. Communication 4. Oxidation of
Ethylene by Oxygen Under the Action of Fast
Moving Electrons

S/062/60/000/009/011/021
B023/B064

shown that ethylene reacts quicker than oxygen at the mentioned doses. The difference increases at a reduction of the total dose. This phenomenon may be explained by the fact that in the initial period of the reaction, the acetylene and carbon monoxide yields increase due to the catalytic effect of the chamber walls. Glycolaldehyde, formic acid, carbon monoxide, acetylene, and organic peroxides (hydrogen peroxide in a very low yield) are the chief products of oxidation. The formaldehyde yield is 0.15 molecules/100 ev. The dependence of the oxidation process on the interrelation of the initial gases was investigated in the same chamber and under the same conditions. Time of exposure: 15 minutes, dose: $0.55 \cdot 10^{23}$ ev. Figs. 5-8 show that the reaction rate of ethylene with oxygen strongly depends on the interrelation of the gases in the initial mixture. This dependence is greater in the case of ethylene. The experimental results showed that the reduction of the ethylene content in the initial mixture leads to an almost complete oxidation of ethylene. On the other hand an increase of the ethylene content increases the conversion of oxygen. An inverse dependence exists in the radiation-chemical

Card 2/4

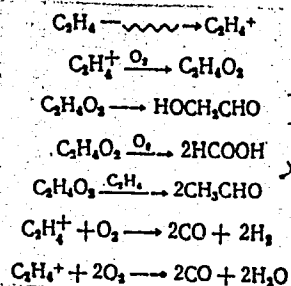
Radiation-chemical Transformations of Organic
Substances. Communication 4. Oxidation of
Ethylene by Oxygen Under the Action of Fast
Moving Electrons

S/062/60/000/009/011/021
B023/B064

authors suggest a reaction mechanism which bases on the formation and further conversions of ethylene peroxide (see Scheme). The authors thank V. S. Bogdanov for his assistance in the research work. There are 8 figures, 3 tables, and 14 references: 5 Soviet, 5 US, 1 Czechoslovakian, 2 British, and 1 German. ✓

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: March 2, 1959



Card 4/4

KISELEV, V. G., Cand. Chem. Sci. (diss) "Gas-Phase Oxidation of Ethylene and Propylene by Oxygen under Effect of Fast Electrons." Moscow, 1961, 12 pp (Moscow State Univ.) 120 copies (KL Supp 12-61, 255).

20943

S/062/61/000/003/010/013
B117/B208

26.1610

AUTHORS: Mikhaylov, B. M. and Kiselev, V. G.

TITLE: Radiolytic oxidation of propylene with oxygen

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, no. 3, 1961, 527-529

TEXT: In this short communication, the authors report on the oxidation of propylene with oxygen in the gaseous phase. Experiments were conducted under the following conditions: voltage of the accelerating field 120 kv; output amperage 0.1 ma (total dose $0.55 \cdot 10^{23}$ ev); initial pressure equal to atmospheric pressure, room temperature, ratio of the components 1:1. Oxidation took place in an aluminum chamber of 2 l capacity. The total amount of acids was determined by titration with phenolphthaleine as the indicator; the end point was indistinct owing to the presence of peroxides. The peroxides were determined iodometrically. There was no propylene oxide in the oxidation products. Gaseous oxidation products were chromatographed. CO₂ and oxygen were determined by the absorption method. The results of

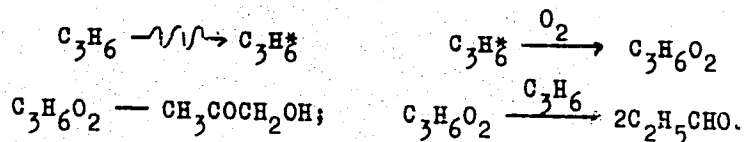
Card 1/4

20943

Radiolytic oxidation of propylene...

S/062/61/000/003/010/013
B117/B208

these experiments are summarized in the table. The data indicate that the main products which form during oxidation of propylene under the action of fast electrons in the gaseous phase are peroxides, acetol, carbon monoxide, and propanal. The absence of acrolein indicates that the methyl group is not oxidized. The high acetol yield may be best explained by addition of the oxygen molecule to the double bond of propylene, and by isomerization of the cyclic peroxide resulting in this way. Propanal is presumably formed by reaction of primary active propylene peroxide with initial propylene. The high carbon monoxide yield indicates that it is no decomposition product of formic acid, but one of the primary products formed in addition to the acid. The scheme of radiolytic oxidation of propylene is thus, in essential, analogous to the scheme suggested in Ref. 1 (B. M. Mikhaylov, V. G. Kiselev, Izv. AN SSSR, Otd. khim. n. 1960, 1619) for the oxidation of ethylene under the action of fast electrons:



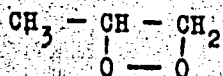
Card 2/4

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Radiolytic oxidation of propylene...

S/062/61/000/003/010/013
B117/B208

The peroxide denoted in the scheme by $C_3H_6O_2$ is assumed to have the following structure



i.e., it is a homolog of the cyclic ethylene peroxide. There are 1 table and 12 references: 2 Soviet-bloc and 10 non-Soviet-bloc.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: August 2, 1960

Card 3/4

MIKHAYLOV, B.M.; KISELEV, V.G.

Radiochemical conversions of organic compounds. Neftekhimia
1 no.2:267-273 Apr-Apr '61. (MIRA 15:2)

1. Institut organicheskoy khimii AN SSSR im. N.D. Zelinskogo.
(Radiochemistry);
(Propene) (Oxidation)

S/844/62/000/000/062/129
D204/D307

AUTHORS: Mikhaylov, B. M. and Kiselev, V. G.

TITLE: The oxidation of ethylene and propylene with oxygen under the action of fast electrons

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 367-373

TEXT: Ethylene oxidized chiefly to peroxides, glycolic aldehyde, HCOOH, $\text{CH}\equiv\text{CH}$ and CO; small amounts of CH_3CHO , H_2 , CO_2 and traces of butylene, CH_2O and CH_3COOH were also found. In an Al reaction maintained at room temperature and initially atm pressure, with $\text{C}_2\text{H}_4/\text{O}_2$ equal to 1, it was shown that ethylene reacted faster than O_2 on irradiation ($0.2 - 1.7 \times 10^{23}$ ev), especially at the lower doses. The reactor walls behaved as a catalyst until they were covered by the liquid products. Dose magnitude exerted little effect on the

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The oxidation of

S/844/62/000/000/062/129
D204/D307

oxidation yields, for irradiation periods longer than 15 min. Under similar conditions, in oxygen-poor starting mixtures, those processes were favored in which O_2 does not play a primary part; oxygen-rich mixtures led to a fuller oxidation of the olefin. Energy yields were relatively independent of the dose of irradiation and the olefin: O_2 ratio (n). The reaction proceeded similarly in Al steel, glass and brass reactors, (although in the last cases some secondary reactions were affected), and was relatively uninfluenced by changes of temperature (-40 to +80°C). Under similar conditions (Al reactor, room temperature, initially atmospheric pressure, a dose of 0.55×10^{23} ev, $n = 1$) propylene oxidized mainly to acetol, peroxides, CO and propionaldehyde, with smaller amounts of HCOOH, CH_2O and CO_2 . The reaction is analogous to that of ethylene. It is proposed that the initial stage of oxidation comprises the addition of O_2 across the double bond of the activated olefin, to form cyclic peroxides, (I), which then isomerize to glycollic aldehyde or acetol. Acetaldehyde and propionaldehyde form by the reaction of

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L 13715-63

PI-4 IJP(C)/GG/JD

EWP(u)/BDS/ENT(1)/ENT(m)/EEC(b)-2 AFFTC/ASD/ESD-3

ACCESSION NR: AP3003559

8/0020/63/151/002/0369/0372

AUTHORS: Kazanskiy, V. B.; Nikitina, O. V.; Pariyskiy, G. B.; Kiselev, V. F. (7) 6

TITLE: Electron paramagnetic study of radical form of molecular oxygen adsorption on reduced titanium dioxide.

SOURCE: AN SSSR. Doklady, v. 151, no. 2, 1963, 369-372

TOPIC TAGS: EPR, titanium dioxide, oxygen, anatase

ABSTRACT: A complex electron paramagnetic resonance was observed after the admission of oxygen into an ampule containing a test specimen of anatase. The form of this signal depends on the pressure of the oxygen, during which the adsorption process, the pressure of oxygen is increased then the amplitude of the "narrow" or initial signal falls, and after 20 mm the signal cannot be observed. Influences of the oxygen on the signal are invertible. The paper was presented by Academician V. N. Kondrat'yev on 3 April 1963. Orig. art. has: 2 figures and 1 table.

Inst. of Chemical Physics

Card 1/2,

L 14355-63

Ps-4/Pc-4/Pr-4

EPR/EWP(j)/EFF(o)/EWP(q)/EWT(m)/BDS

AFTIC/ASD/AFMDC/RPL

ACCESSION NR: AP3003852

9/0020/63/151/003/0577/0579

AUTHORS: Mikhaylov, B. M.; Pozdnev, V. F.; Kiselev, V. G.

TITLE: Organoboron compounds. Hydroboranizing the dimethyl ether of allylboric acid.

SOURCE: AN SSSR. Doklady*, v. 151, no. 3, 1963, 577-579

TOPIC TAGS: organoboron compound, hydroboranizing allylboric acid, dimethyl ether of allylboric acid, tribornonane, diboracyclooctane

ABSTRACT: The dimethyl ether of allylboric acid (I) was hydroborated to determine the effect of the $(RO)_2B$ group on the course of addition of B to the allyl radical and to check possibility of obtaining compounds containing several B atoms in the molecule. The reaction gave 97% propanediol-1,3, indicating hydroboration of I is more selective than of Alpha-olefins and the B was added at the double bond end of the hydrocarbon. I reacted with diborane to form tre-(3-dimethoxyboryl-propyl)-boron (II); the latter was methoxylated in presence of ethyl mercaptan to form 1,1,5,9,9-pentamethoxy-1,5,9,-tribornonane, or heated to form 1,5-dimethoxy-1,5-diboracyclooctane (III) with admixture of 1,1,5,5-tetramethoxy-1,5-dibor-pentane. III was butylaxed to the known 1,5-di-n-butoxy-1,5-diboracyclooctane.

Association: Inst. of Organic Chemistry

Cord 1/2/

MIKHAYLOV, B.M.; BEZMENOV, A.Ya.; VASIL'YEV, L.S.; KISELEV, V.G.

Cyclic compounds of boron formed during hydroboration of
1,3-butadiene. Dokl. AN SSSR 155 no.1:141-144 Mr '64.

(MIR' 17:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
Predstavleno akademikom B.A.Kazanskim.

L 19490-65 EPF(c)/EPR/EMA(h)/ERP(j)/EMT(m)/T Pc-4/Pr-4/Ps-4/Feb RPL
RM/WW/JW

ACCESSION NR: AP5002072

S/0062/64/000/002/0365/0367 33

AUTHOR: Shchegoleva, T. A.; Shashkova, Ye. M.; Kiselav, V. G.; Mikhaylov, B. M. 31

TITLE: Hydroboration of dienes with chloroborane 7

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1964, 365-367

TOPIC TAGS: organoboron compound, chloroborane, boron addition, diene boridation, diallyl, pentadiene, butadiene, borocyclopentane

ABSTRACT: In order to determine the effect of the nature of the diene on addition across the double bond, the authors studied the addition of chloroborane to diallyl, pentadien-1,4 and butadien-1,3 in ether solution at room temperature. Chromatography and degradation of the reaction products showed that diallyl adds primarily in the 1,6 position (74%), with smaller amounts of 1,5 and 2,5 addition products. Fractional distillation of this mixture resulted in good yields of pure 1-chloroborocyclopentane. Addition to pentadien-1,4 took place in both the 1,5 and 1,4 positions (53% and 47%, respectively), while addition to butadien-1,3 was mostly in the 1,4 position (75%), with 21% of the 1,3 addition product. The reaction conditions and yields are given. Orig. art. has: 2 chemical equations.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk
Cord 1/2

L 19490-65

ACCESSION NR: AF5002072

SSSR (Institute of Organic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 19Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 001

OTHER: 003

Card 2/2

L 21777-65 EPF(c)/ENG(j)/EWA(h)/EWP(j)/EWT(m)/ENA(1) Pc-4/Px-4/Peb RAEM(1)

RM

ACCESSION NR: AP4044708

S/0062/64/000/008/1524/1526

AUTHOR: Mikhaylov, B. M., Kiselev, V. G., Bogdanov, V. S.

TITLE: Conversion of water gas by means of fast electrons

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 8, 1964, 1524-1526

TOPIC TAGS: water gas, water gas conversion, fast electrons, radiolysis, reaction mechanism, bicarbonyl, glyoxal, carbon suboxide, glycol aldehyde, methanol, peroxide formation

ABSTRACT: The radiolysis by fast electrons (115 kev, integral dose rate of $0.4-3.3 \times 10^{23}$ ev) of mixtures of CO and H₂ was studied under equilibrium conditions at room temperature. The product yield, depending on initial composition subjected to radiolysis, is summarized in fig. 1. The main oxygen-containing products were glyoxal, CO₂ and C suboxides (C₃O₂)_x; no glycol aldehyde, methanol, peroxides or gaseous hydrocarbons were detected. A small amount of H₂ increased the decomposition of CO; additional H₂ had little effect. 50-56% of

Card 1/3

L 21777-65
ACCESSION NR: AP4044708

the initial C, 25-40% of the H₂ and 70-95% of the O appeared in the radiolysis products, indicating additional compounds (high molecular oxygen-containing compounds and hydrocarbons) were formed also. On increasing pressure from 0.2 to 1 atmosphere the yield of all radiolysis products increased, except for CO₂ which decreased. The following mechanism was proposed: an excited CO molecule reacts with another CO molecule, even in the presence of H₂, to form the bicarbonyl -CO-CO-, which then reacts with H₂ to form glyoxal. Or the bicarbonyl reacts with additional CO to form CO₂ and the suboxides. Orig. art. has: 3 figures

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry, Academy of Sciences, SSSR)

SUBMITTED: 08Jan64

ENCL: 01

SUB CODE: GC

NO REF SOV: 002

OTHER: 005

Card 2/3

L 21777-65

ACCESSION NR: AP4044708

ENCLOSURE 01

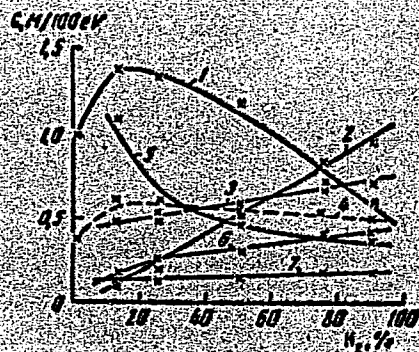


fig. 1

Relationship of the radiation-chemical yields to the composition of the initial mixture. 1--CO₂; 2--CH₂O x 10; 3--(CHO)₂; 4--CO/10; 5--RCOOH; 6--H₂/10; 7--HCOOH

Card 3/3

MIKHAYLOV, B.M.; KISELEV, V.G.; BOGDANOV, V.S.

Conversion of water gas by fast electrons. Izv. AN SSSR. Ser.
khim. no.8:1524-1526 Ag '64. (MIRA 17:9)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

L 40970-65 EWP(e)/EWT(m)/EPF(c)/EPR/EWP(j)/EWP(t)/EWP(b) Pc-4/Pr-4/Ps-4

IJF(c)/RPL JD/WW/RM

ACCESSION NR: AP5006414

S/0062/65/000/001/0068/0072

AUTHOR: Mikhaylov, V. M.; Bubnov, Yu. B.; Kiselev, V. G.

TITLE: Boron organic compounds. Report 136. Boron germanium compounds

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 1, 1965, 68-72

TOPIC TAGS: boron, boron organic compound, germanium, germanium compound

ABSTRACT: An investigation was made of the reaction of the addition of germanium hydrides--triethylgermanium and triphenylgermanium--to the dimethyl ester of allylboric acid. It was found that these reagents are also united more easily with the multiple bond of the allyl radical connected with the B(OR)₂ group than with olefin hydrocarbons and their various γ-functional derivatives. All operations with the boron organic compounds were conducted in an atmosphere of dry nitrogen. Triethyl- and triphenylgermanium united with allylboric acid ester upon heating with the formation of 3-triethyl- and 3-triphenylgermylpropylboric acid esters respectively. The nuclear magnetic resonance spectrum was measured by V. F. Syatov for which the authors thank him. The authors express gratitude to V. F. Mironov for graciously providing a sample of 3-triethylgermylpropyl alcohol." Orig. art. has: 5 equations, 1 formula.

Card 1/2

L 40970-65

ACCESSION NR: AP5006414

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry, Academy of Sciences SSSR)

SUBMITTED: 20Feb63

ENCL: 00

SUB CODE: GC, OC

NO REF SOV: 008

OTHER: 003

llc
Card 2/2

MIKHAYLOV, B.M.; KISELEV, V.G.; BUBNOV, Yu.N.

Preparation of α -olefins from trialkylboron. Izv. AN SSSR. Ser.
khim. no.5:898-900 '65. (MIRA 18:5)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

MIKHAYLOV, B.M.; BOGDANOV, V.S.; KISELEV, V.G.

Reduction of carbon dioxide by hydrogen under the effect of fast electrons.
Izv. AN SSSR. Ser. khim. no.7:1271-1273 '65. (MIRA 18:7)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

L 16075-66 EWP(e)/EWT(m)/EWP(j)/T/EWP(t) IJP(o) JD/WE/RM
ACC NR: AP6005922 SOURCE CODE: UR/0079/66/036/001/0062/0066

AUTHOR: Mikhaylov, B. M.; Bubnov, Yu. N.; Kiselev, V. G.

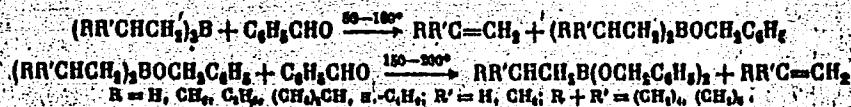
ORG: none

TITLE: Organoboron compounds. CLVIII. Comparative capacity of boron trialkyls to eliminate olefins

SOURCE: Zhurnal obshchey khimii, v. 36, no. 1, 1966, 62-66

TOPIC TAGS: organoboron compound, olefin, hydrocarbon, aldehyde, isomerization

ABSTRACT: When heated with aldehydes, triethylborane and higher trialkyls eliminate olefin hydrocarbons to form esters of dialkyl- or alkylboronic acids:



Card 1/2

UDC: 547.244

SHCHEGOLEVA, T.A.; SHASHKOVA, Ye.M.; KISELEV, V.G.; MIKHAYLOV, B.M.

Organoboron compounds. Part 158: Hydroboration of dienes by
n-butylmercaptoborane. Zhur. ob. khim. 35 no.6:1078-1083
Je '65. (MIRA 18:6)

KISELEV, V. I.

"Rationalization of Technology in the Production of Cinder-Concrete Stones on the Base of Cinders from Coals of the Moscow Area." Sub 17 Apr 51, Central Sci Res Inst of Industrial Structures (TsNIPS)

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

1/13/77
SIVERTSEV, G.N., prof.; KISELEV, V.I., kand. tekhn. nauk.

Mechanical activation of cement in mortars and concretes. Trudy
NIIZHB no.1:104-127 '57. (MIRA 11:1)
(Concrete) (Mortar) (Cement)

KISILEV, V. I., kand. tekhn. nauk

Comparative freezing and thawing tests on concrete. Trudy NIIZHB
no. 12:109-112 '60. (MIRA 13:8)
(Frost resistant concrete--Testing)

KISELEV, V. I.

USSR/Cultivated Plants. Cereals.

M

Abs Jour: Ref Zhur-Biol., No 17, 1958, 77649.

Author : Kiselev, V. I.

Inst : Alma-Ata Zooveterinary Institute. - *Chair of Plant Growing*

Title : Perspectives of Cultivation of Soy Under Conditions of South Kazakhstan.

Orig Pub: Tr. Alma-Atinsk. zoovet. in-ta, 1957, 10, 127-132.

Abstract: Results of experiments of 1955-1956 as regards agro-techny (periods and methods of sowing, influence of fertilizers, periods and quantity of waterings) and variety testing of soy in conditions of irrigated agriculture in the foothill zone of Alma-Atinskaya Oblast. The variety Local proved to be

Card : 1/2

9.8200
3.6000

S/050/61/000/001/007/007
B012/B058

AUTHOR: Kiselev, V. I.

TITLE: Complex Device for Hydrological Remote Measurements in the Sea

PERIODICAL: Meteorologiya i gidrologiya, 1961, No. 1, pp. 49-53

TEXT: Starting in 1954, a device has been designed, built, and tested in the sea by the author and G. I. Priymak, I. P. Zhukov, S. N. Dolgov, and Yu. I. Naumenko. A short description of it is given here. The complete device serves for remote measurements (in a wide range) of the mean temperature of sea water with an accuracy of 0.1° and of the temperature micro-fluctuations with an accuracy of up to 0.005° , as well as the turbulent velocity of the current within the limits of from 0 to 80 cm/sec with an accuracy of from 1 to 5% at 50 cm/sec and more, and the pulsation of the current velocity with an accuracy of 0.1 mm/sec. The device consists of a set of measuring circuits with the various pickups which are placed in a stand, as well as of a corresponding recording part. A 24-loop oscilloscope

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88351

Complex Device for Hydrological Remote
Measurements in the Sea.

S/050/61/000/001/007/007
B012/B058

of the type "OT-24-51" (OT-24-51) from the "Geofizika" Plant in Moscow is used for synchronous recording. The device permits obtaining a spatial picture of the microfluctuations at a depth of up to 100 m, for a total depth of the sea at the test site of up to 500 m and a distance of the recording part from the measuring part of up to 1000 m. The device is based on the use of ground anchors and submergible flotage, the greatest possible reduction of the possible rolling, as well as exact fixation of the system position below water being warranted for each individual moment by means of special pickups. The temperature measurement is made with the aid of a d.c. bridge circuit with compensation, a resistance thermometer from 0.05 mm copper wire with reinforced lacquer coating being connected as pickup to one bridge arm. At a cable length of up to 1000 m, the mean temperature within the range of from 5 to 27°C can be measured with an accuracy of 0.1°, and the temperature fluctuation of 0.005° and more (at a frequency of up to 10 cycles) can be recorded by means of the oscilloscope mentioned. The current velocity is also measured by a d.c. bridge circuit, the "MT-54" (MT-54) thermistor (design by V. G. Karmanov,

Card 2/4

Complex Device for Hydrological Remote
Measurements in the Sea

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built by the eksperimental'nyye masterskiye Agrofizicheskogo instituta (Test Workshops of the Institute of Agricultural Physics) in Leningrad) being connected to one bridge arm as velocity pickup. The measurement is based on the thermoanemometric method. The relative direction of current is determined by means of a d.c. remote transmission by a potentiometer. The actual direction of current is determined by means of an aircraft compass "PAK-3" (PDK-3). The pickups are fitted to a special frame and placed in the sea. A modern device consisting of a stand and a 30-core cable with pickups was used in the ocean in 1960. The device made it possible to connect the pickups successively to the corresponding circuits by means of step-by-step selectors. The temperature- and current-velocity pickups were connected directly to the circuits, while all other pickups were connected via the step-by-step selectors. The device was mounted at a distance of 7 miles from the shore and a depth of about 100 m. The stand was placed on an anchored vessel, and the influence of the rolling of the ship on the measurements was eliminated. A new device for the remote measurement of all elements of the wave movement has been finished

Card 3/4

88351

Complex Device for Hydrological Remote
Measurements in the Sea

S/050/61/000/001/007/007
B012/B058

now. There are 2 figures and 1 Soviet reference.

Card 4/4

SOV-91-58-9-9/29

AUTHORS: Kiselev, V.I. and Pavlovskiy, S.A.; Technicians

TITLE: Covers for Chemical Water Purifying (Kolpachki dlya khim-vodoochistki)

PERIODICAL: Energetik, 1958, Nr 9, pp 17-18 (USSR)

ABSTRACT: The plastic sodium cationite and mechanical filter covers produced at the Moscow "Karbolit" Plant for use in chemical water purifying installations in electric power plants are not durable enough and tend to break up. The authors describe a new metallic filter cover made from defective turbine condenser tubes. The covers could also be prepared from vinyl plastic tubes of a suitable diameter. There are 2 photos and 3 diagrams.

1. Water--Purification 2. Water filters--Equipment

Card 1/1

KISELEV, V.I.

AID P - 2960

Subject : USSR/Electricity

Card 1/1 Pub. 29 - 10/35

Authors : Kiselev, V. I., Technician, and A. N. Chernova, Eng.

Title : Reestablishment of exchange capacity of sodium- and hydrogen-zeolite filters during flood

Periodical : Energetik, ³5, 14-15, My 1955

Abstract : During annual floods of the Belaya River, the quantity of suspended matter in the feed-water of a steam electric power station working with the river water greatly increases. The authors describe the method used to reestablish regular functioning of feed-water-treatment apparatus.

Institution : None

Submitted : No date

KISELEV, V. I.

"Impact of certain social institutions and customs on economic development of under-developed countries"

report to be submitted for the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas - Geneva, Switzerland, 4-20 Feb 63.

KISELEV, V.I.

KISELEV, V.I.: "Differential diagnosis of acute appendicitis in children".
Moscow, 1955. Second Moscow State Medical Inst imeni I.V. Stalin, Chair
of Children's Surgery. (Dissertations for the Degree of Candidate of
Medical Sciences).

SO: Knizhnaya letopis' No 44, 29 October 1955. Moscow.

KISELEV, V.I.

Surgery in large embryonal hernia with favorable outcome. Vop.okh.
mat.1 det. 7 no.4:90-91 Ap '62. (MIRA 15:11)

1. Iz kafedry gosspital'noy khirurgii (zav. - prof. A.V.Obchinnikov)
Altayskogo meditsinskogo instituta (rektor - dotsent F.M.
Kolomiytsev).

(HERNIA) (INFANTS (NEWBORN)--DISEASES),

KISELEV, V. I.(Barnaul, M. Olonskaya, d. 13, kv. 28); POPOVA, L. I.

Two cases of a primary malignant tumor of the pleura. Grud. khir.
4 no.1:109-110 Ja-F '62. (MIRA 15:2)

1. Iz kafedry gospital'noy khirurgii (zav. - prof. V. P. Radushkevich)
i kafedry rentgenologii s meditsinskoy radiologiyey (zav. - dotsent
M. M. Mikhaylov) Voronezhskogo gosudarstvennogo meditsinskogo
instituta.

(PLEURA---CANCER)

ISKENDEROV, Akhmed Akhmedovich; KISELEV, Vladimir Ivanovich;
ROZALIYEV, Yuriy Nikolayevich; DAVIDOVA, Yu.F., red.;
ATROSHCHENKO, L.Ye., tekhn. red.

[Labor movement in Asia and Africa] Rabochee dvizhenie v
Azii i Afrike. Moskva, Izd-vo "Znanie," 1963. 32 p. (No-
voe v zhizni, nauke, tekhnike. 1 Seriya: Istoriia, no.18)
(MIRA 16:11)

(Asia--Labor and laboring classes)
(Africa--Labor and laboring classes)

KISELEV, V.I., prof., doktor tekhn. nauk; NIKULIN, V.B., kand. tekhn.
nauk; USHAKOV, V.I., inzh.

Removal of water in pneumatic mine networks under permafrost
conditions. Gor. zhur. no.7:48-50 J1 '63. (MIRA 16:8)

1. Moskovskiy institut stali i splavov.

KISELEV, V.I.

Action of different antibiotic combinations on diphtherial
bacteria. Antibiotiki 8 no.8:744-746 Ag '63. (MIRA 17:5)

1. Gor'kovskiy institut epidemiologii i mikrobiologii.

RADUSHKEVICH, V.P., prof.; KISELEV, V.I., kand. med. nauk

Management of penetrating injuries of the chest in
peacetime. Khirurgia no.1:56-58 '63. (MIRA 17:5)

1. Iz gosital'noy khirurgicheskoy kliniki (zav. -- prof. V.P.
Radushkevich) Voronezhskogo meditsinskogo instituta.

KISELEV4V818

1. KISELEV, V. I.

2. USSR (600)

"Mintsvetmetzoloto" (Moscow Institute of Nonferrous Metals and Gold).
"The Determination of the Optimum Working Load for Ship Loaders", Tsvet.
Met. 14 No 7, July 1939.

9. [REDACTED] Report U-1506, 4 Oct 1951.

KISELEV, V. I.

Mashinist rudnichnoi nasosnoi ustanovki. Moskva, Metallurgizdat, 1943. 111 p.
illus. (V pomoshch'rabochim massovykh professii)

Engineer of mine-pump installations.

DLC: TN 325.K5

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of
Congress, 1953

KISELEV, V. I.

Nasosy, kompressory, vozdukhoduvki i ventiliatory. Moskva, Metallurgizdat, 1943.
151 p. illus.

Bibliography: p. 149

Air pumps, compressors, blowers and ventilators.

DLC: TJ950.K5

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of
Congress, 1953.

KISELEV, V. I.

Gornaya mekhanika; rudnichnye, podzemnye, vodootlivnye, pnevmaticheskie i ventilatornye ustanovki. Utverzhdeno v kachestve uchebnika dlia vtuzov. Moskva, Metallurgizdat, 1946. 503 p. illus.

Bibliography: p. 497.

Mining engineering; mining, hoisting, pumping, pneumatic and ventilating units.

DLC: TN145.K5

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

KISILEV, V.I.

Some hoisting systems with auxiliary ropes. Gor. zhur. 122 no.2:
30-34 P '48. (MLRA 8:9)

(Mine hoisting)

KISELEV, V. I.

N/5
741.31
.K6
1952

Gornaya Mekhanika; Rudnichnyye Vodootlivnyye, Pnevmaticheskiye, Ventilyatornyye i Pod'yemnyye Ustanovki (Mining mechanics; Draining, Pneumatic, Ventilating and Hoisting Equipment) 2 Perer. I Dop. Izd. Moskva, Metallurgizdat, 1952.

627 P. Illus., Diagr., Tables.

Contains Bibliographies.

KISELEV, V.I.; SAVIN, G.N., professor, doktor, retsenzent; MAKAROV, V.S.,
professor, doktor, retsenzent; MATVEYEV, M.A., redaktor; YEZDOKOVA,
M.L., redaktor; VAYNSHTEYN, Ye.B., tekhnicheskii redaktor

[Hoists for deep mines] Pod'emnye ustanovki dlia glubokikh shakht,
Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi
metallurgii, 1954. 227 p. [Microfilm] (MIRA 7:10)

1. Vitse-president AN USSR (for Savin)
(Mine hoisting)

KISELEV, V.I.

PAK, Vitol'd Stepanovich, professor; GEYER, Viktor Georgievich; professor
doktor tekhnicheskikh nauk; KISELEV, V.I., redaktor; ZEMSKOV,
P.F., redaktor; ANDREYEV, G.G., tekhnicheskii redaktor.

[Mine ventilating and draining systems] Rudnichnye ventilatornye
i vodootlivnye ustanovki. Moskva, Ugletekhizdat, 1955. 352 p.
(MLRA 8:12)

1. Byystvitel'nyy chlen AN USSR.
(Mine ventilation) (Mine pumps)

KISELEV, V.I.

Multiple-cable friction pulley. Gor.shur.no.12:25-31 D '56.

(MIRA 10:1)

1. Moskovskiy institut tsvetnykh metallov i zolota.
(Hoisting machinery)

Kiselev, V.I.

AUTHOR: Kiselev, V.I.

127-12-11/28

TITLE: On the Standardization of Skips for Non-Ferrous and Ferrous Metallurgy Mines (O standartizatsii skipov dlya rudnikov tsvetnoy i chernoy metallurgii)

PERIODICAL: Gornyy Zhurnal, 1957, No 12, pp 38-41 (USSR)

ABSTRACT: The Chair of Mining Mechanics of the Moscow Institute of Non-Ferrous Metals and Gold has carried out a work on standardization of dump skips for all types of ore. The work was performed by V.I. Kiselev, M.A. Matveyev, I.V. Kulikov and K.A. Senik. The existing at present standard skips of the "Giprotvetmet", "Giproruda" and "Krivbassproekt" differ from one another by capacity and main dimensions, a fact which causes great inconvenience. Analysing the available material and certain theoretical relationships the author proposes the following measures:

1. To accept unique standards for skips employed in the mines of ferrous and non-ferrous metallurgies;
2. The skip capacity should be put into the basis of standardization;
3. To accept as standards the following series of capacities: 1; 1.5; 2.25; 3.3; 5 and 7.5 m³;

Card 1/2

127-12-11/28

On the Standardization of Skips for Non-Ferrous and Ferrous Metallurgy Mines

4. Skips exceeding 7.5 m^3 are to be considered as non-standard.

The article contains 5 graphs and 2 tables.

ASSOCIATION: Moscow Institute of Non-Ferrous Metals and Gold (Moskovskiy institut tsvetnykh metallov i zolota)

AVAILABLE: Library of Congress

Card 2/2